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### Policy

The U.S. Navy Medical News Letter is basically an official Medical Department publication inviting the attention of officers of the Medical Department of the Regular Navy and Naval Reserve to timely up-to-date items of official and professional interest relative to medicine, dentistry, and allied sciences. The amount of information used is only that necessary to inform adequately officers of the Medical Department of the existence and source of such information. The items used are neither intended to be nor susceptible to use by any officer as a substitute for any item or article in its original form. All readers of the News Letter are urged to obtain the original of those items of particular interest to the individual.

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### Navy Adopts New Policy to Attract Officers in the Medical and Dental Corps, Regular Navy

ALNAV-43, which was released by the Secretary of the Navy on 27 August 1953, reveals the highlights of the new policy. It is reproduced in full:

"Purpose is to provide advance information concerning substance of SecNav Inst. 1920.2 signed 20 Aug now in process of promulgation. Establishes policy on acceptance of resignations of medical and dental officers of the Regular Navy initially commissioned therein in the grade of LT or LTJG on or after 7 Aug 1953. Resignations may be submitted by such officers after serving four years on active duty in the regular component of their corps exclusive of internship, residency or other postgraduate training and periods of obligated service required by reason of acceptance of such training. Officers who do not submit resignation at end of four year period will continue as career officers and resignation submitted thereafter will be considered in accordance with the then current policy."

On 28 August 1953, the Department of Defense, Office of Public Information, Washington 25, D.C., issued a press release which in substance was identical with ALNAV-43. This sentence was added: "These officers also become eligible for postgraduate training after completion of one tour of sea or foreign shore duty."

Commenting on the new policy, Vice Admiral James L. Holloway, Chief of Naval Personnel said:

"This policy will free young Medical and Dental Corps officers from the feeling that they are captives. As such, it has much merit and will, it is hoped, offset some of the most serious questions in the minds of potential applicants. I hope and believe it will be a boon of the first order to the Medical and Dental Corps of the Navy."



Rear Admiral Lamont Pugh, Surgeon General of the Navy, concerning the new policy, stated:

"I consider this policy to be one of the most meritorious appeals ever offered to prospective officers of the Medical and Dental Corps of the Navy. Now it is possible for a young physician or dentist just out of medical or dental school to serve his country--so urgently needing his services--with definite assurance that his resignation will be accepted after four years should he decide to resign his commission."

In the next issue of the Medical News Letter elaboration of the new policy concerning medical and dental officers will be forthcoming. An attempt will be made to illustrate examples by which the prospective medical or dental officer may readily visualize and understand his particular situation. (PersDiv, BuMed)

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#### Incidence of Reactions to Antirabies Horse Serum

The reawakening of interest in the development of hyperimmune rabies serum has made available a new approach to the prevention of rabies in man. Several groups of workers are now, or have been, exploring the use of serum as an adjunct to the classic vaccination procedure or possibly even as an outright replacement of vaccination.

This report deals with the use of the horse serum concentrate. The concentrate was used only on patients having face, neck, arm, and hand bites, the patients having been skin-tested before administration of the serum. Serum was not used if the bite occurred longer than 72 hours prior to the time serum could be given. The dosage was 0.25 ml. per pound of body weight given intramuscularly, followed in 24 hours with at least a 7-course treatment of Semple vaccine unless a shorter course was indicated by the condition of the biting dog.

Eight of thirty-two patients had attacks of serum sickness of varying intensity. Only 3 of these reactions were severe and 2 were moderate. If the 3 slight reactions are discounted, the reaction rate is 15.6%, a figure which compares favorably with reported reaction rates following the use of rabbit serum and is far less than reported rates following the use of sheep serum. If this reaction rate is maintained with more extensive experience, the use of antirabies horse serum in the presence of a negative skin test would not be contraindicated.

Ten of the patients were bitten by dogs proved rabid. Four additional patients were bitten by dogs in which rabies was doubtful. In 1 instance the biting dog was not found, and in 2 instances the animals were killed and the brains found negative for Negri bodies. Of the patients bitten by dogs proved rabid, 7 had face bites; 2, finger bites; and 1, leg bites. Of those bitten by doubtful rabid animals, 2 had face bites; and 2, finger bites.

Experimentally the use of antirabies serum has a good foundation. One adverse report which has appeared is not based on recent experimental evidence. It is not possible, of course, to draw a definite conclusion as to the value of serum on the basis of this limited study. It is safe to say, however, that there are no serious contraindications to its use and that it may have done some good.

In view of the fact that 7 patients with face or neck bites and 2 with finger bites from rabid dogs were treated with a low potency vaccine, as measured by the Habel test, and that Sellers has shown that the risk of infection is 72 times greater in face bites than in leg bites and 5 times greater in hand bites than in leg bites, it may be assumed that these patients were at great risk. None of the patients to date have developed rabies.

At present, it is premature to rely on serum treatment alone. If its use, however, permits a reduction in the number of vaccine treatments from the usual 14 to perhaps 7 or less, this would in itself be a distinct advantage, because a shorter course of vaccine treatment should reduce the risk of postvaccination paralysis. Serum is also advantageous in cases in which the biting dog cannot be found immediately. Its use would allow time for a thorough search for the dog before vaccine treatment is initiated. When vaccine treatment is indicated only on the theory that any animal bite, no matter how trivial, can produce rabies, judicious use of serum might permit elimination of vaccination and at the same time offer the patient mental relief. Finally, in the presence of severe face and hand bites, simultaneous use of serum and vaccine should materially reduce the danger of infection, if, in fact, the serum alone were not efficacious. The prolonging of the incubation period through the use of serum gives more time for active immunity to develop from the vaccine. (Pub. Health Rep., Aug. 1953, T.S. Hosty and F.R. Hunter)

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#### Prophylaxis of Epidemic Parotitis

Mumps occurs in prolonged epidemics in military populations at times and creates a problem of no little importance because of its complications and prolonged periods of hospitalization. Investigations were begun several years ago into the possibility of vaccination against the disease and the successful vaccination of children against mumps has been reported. However, the method for preparation of the most economical and effective vaccine has not been settled and varying results have been obtained with the vaccines tested. Neither has the dose which gives maximum protection been decided. Because of the importance of the military problem, studies were undertaken by personnel of the University of Illinois College of Medicine working in collaboration with members of the U. S. Naval Medical Research Unit No. 4



at Great Lakes Naval Training Center, to answer these questions insofar as men of military age were concerned. The vaccine was prepared by growing the virus in chick embryos. The virus containing fluids from the egg were treated with alcohol to concentrate the virus which was then rendered noninfectious with ultraviolet light. When the vaccine was given to Navy men it caused no reactions. Antibodies against mumps virus were stimulated in the blood of 80 to 85% of men who had never had mumps to levels which have been shown to protect children against mumps. Mumps did not occur in untreated men during the period of the study and there was no opportunity to make observations on its ability to actually protect against mumps, however, it will be tested against this disease should an epidemic occur at any Navy station. The tests have provided the necessary information as to the safety of the vaccine and the dose needed for greatest stimulation of protective antibodies. (Project Report NM 005 051. 12. 01, NAMRU 4, Great Lakes, Ill. , 10 June 1953)

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#### Studies on the Prevention of Mumps

This article discusses the application of the neutralization test to the determination of immunity or susceptibility to mumps and the evaluation of vaccination against that disease by subcutaneous injection of inactivated virus or by the spraying of attenuated active virus into the oral cavity. Because skin testing appeared to be ineffective as a preventive measure, no efforts were made to study sera from individuals thus treated except for a few needed as controls in one series.

For these studies sera were selected from individuals in Alaska with or without history of past infection. Both series were subdivided into groups which did or did not possess complement fixing antibodies against the V-antigen. In addition, a number of sera were studied which were obtained from individuals with a positive, doubtful, or negative skin reaction. According to this selection, the results of the neutralization tests are not representative of the over-all distribution of neutralizing antibodies and can be used only in evaluations of the incidence of such antibodies in individuals with a positive or negative history, or with or without complement fixing antibodies in their sera, or who showed various degrees of dermal sensitization. The data do not lend themselves to analyses based on the results of the neutralization test, i. e. to a determination of the incidence of positive histories, complement fixing antibodies, or dermal sensitization in individuals who possess neutralizing antibodies or not, because representative sera had been selected for study according to the above criteria.

The results presented indicate that the control of mumps by vaccination procedures is not as far advanced as appeared to be the case in considering previous studies employing mainly the complement-fixation tests for the

analysis of responses. Although the neutralization data concerning subcutaneous immunization with inactivated virus reported here can readily be integrated with the past results, they suggest that new standards must be devised to arrive at a more reliable evaluation of the results of vaccination. While it is obvious that the neutralization test is too cumbersome and expensive for routine testing, and that the development of complement-fixing antibodies as a result of vaccination in itself is no proof of successful immunization, the data indicate that if complement fixation titers of 1:16 or greater are attained, it is likely that neutralizing antibodies are also present. It would be necessary, then, that a vaccine produce complement-fixing antibody titers to at least that level. None of the presently available vaccines given in a single injection are capable of producing this result in a substantial proportion of susceptible individuals. These data imply that either the potency of mumps vaccines will have to be increased or the procedure of vaccination must be improved. The currently available mumps vaccines represent an approximately 20-fold concentration of mumps virus over that found in allantoic fluid. Further concentration of the antigen or an increase in the amount of vaccine administered would not appear feasible in the light of the already high costs of production of the vaccine as well as of the greater number of untoward reactions to be expected in the vaccinees. On the other hand, the effect of a once repeated injection of vaccine after a week's interval should be reinvestigated. Although in the authors' hands 2 doses of vaccine failed to evoke better antibody responses than a single dose as measured by complement fixation, it was shown recently by Walker and Horsfall, using influenza antigens in rabbits, that a second injection at short intervals increased the neutralizing antibody response whereas the degree of hemagglutination inhibition was not affected.

Only 25% of individuals judged susceptible responded with neutralizing antibodies following the subcutaneous inoculation of inactivated mumps virus in contrast to the development of complement-fixing antibodies to the V antigen in 70 to 100% of the vaccinees. Production of neutralizing antibodies appeared to be closely related to immunity to mumps in an epidemic which occurred 8-11 months after vaccination while many cases were recorded in those who failed to reveal a measurable response. These data indicate that the vaccine or the method of vaccination requires improvement. The oral spraying of active attenuated virus failed to yield better responses in neutralizing antibodies as compared to subcutaneous vaccination with inactivated virus.

The neutralization test did not appear superior to the complement-fixation reaction or the skin test as a method of determining susceptibility when related to the history of past mumps or subsequent incidence of mumps. On behalf of greater simplicity and speed the complement-fixation reaction and the skin test will remain useful tools in evaluating the state of immunity.



A correlation of the titers in all types of sera obtained by the neutralization test, the complement fixation with the virus antigen, and the hemagglutination inhibition, indicated that these three technics measured different antibodies. (J. Immunol., Aug. 1953, W. J. Bashe, Jr., T. Gotlieb, G. Henle, and W. Henle)

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#### The Ballistocardiogram in Peripheral Vascular Disease

Because of the recent revival of ballistocardiography as an aid in cardiac diagnosis, it is important to discover the abnormal factors in the cardiovascular tree, which may produce abnormal patterns in the ballistocardiogram. The authors have, therefore, investigated the effect of peripheral vascular disease on the ballistocardiogram in patients who had no primary cardiac disease. Any alterations found in the tracings of such patients could reasonably be related to the peripheral vascular tree, rather than to the heart itself.

The ballistocardiographic findings in 65 cases with peripheral vascular disease are presented. This group included 36 cases with uncomplicated arteriosclerotic peripheral vascular disease and uncomplicated thromboangiitis obliterans. The ballistocardiograms were recorded by means of the Pordy dual displacement and velocity apparatus, a modified Dock-type instrument.

Of 22 patients under 50 years of age, with uncomplicated arteriosclerotic peripheral vascular disease, 18 presented abnormal ballistocardiograms at rest. In 2 cases, the tracing was borderline. Of 14 patients under 50 years of age, with uncomplicated thromboangiitis obliterans, 10 had abnormal resting ballistocardiograms. In 1 case, the tracing was borderline.

In all cases of peripheral vascular disease, complicated by cardiac involvement, the resting ballistocardiograms were abnormal. Abnormal ballistocardiographic patterns are not specific for any one particular peripheral vascular disease entity.

The majority of patients under 50 years of age with uncomplicated peripheral vascular disease have an abnormal ballistocardiogram. (Am. Heart J., Aug. 1953, A. M. Master, E. Donoso, L. Pordy, and K. Chesky)

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The printing of this publication has been approved by the Director of the Bureau of the Budget, June 23, 1952.

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### Sarcoidosis in the Armed Forces

Sarcoidosis is a disease of unknown etiology and of widespread involvement of the human body. As such, it is capable of presenting a multitude of clinical appearances, and is difficult to diagnose. Many excellent descriptions of this disease and papers on every aspect have appeared in the past 20 years, and more are making their appearance. As yet no causative agent has been found, despite comparisons with pathological pictures and clinical manifestations of similar diseases of known etiology. Most of these diseases are sufficiently similar in both respects to be extremely confusing, but from the large amount of evidence available there has arisen the conclusion that sarcoidosis is a clinical entity of its own. That there is much evidence for the closest relationship, that to tuberculosis, cannot be denied; it also cannot be denied that there is as much evidence pointing to the fact that the two are separate. The arguments for and against this relationship, as well as to other diseases, such as histoplasmosis, brucellosis, beryllium poisoning, and leprosy, are best set forth in specific papers on this subject as well as several excellent reviews of the disease as a whole.

The clinical course is extremely variable. There are frequent exacerbations and remissions without apparent cause, confusing the results of attempts at therapy. It is easy to understand the spectacular death of a patient when sarcoidosis involves his heart muscle, but difficult to see why two patients, both with approximately the same involvement of lungs and lymph nodes, go their separate ways, one to complete remission, the other to "alveolar-capillary-block" (fibrosis preventing oxygen exchange) and death. While any structure in the body may be involved, it is important to note that the sarcoid granulomas do not tend to invade the serous and mucous surfaces or periosteum of bones with erosion. Illness is prolonged and may terminate in healing, meanwhile producing few clinical symptoms. While the course is usually benign, some evidence is accumulating that sarcoidosis may be more productive of disability and death than was formerly thought.

The author has been impressed with the relatively large number of proved cases of sarcoidosis diagnosed on the medical service of the 98th General Hospital, Munich, Germany. These have characteristically run the gamut of clinical manifestations and variability of activity. Impressive particularly has been the proved liver involvement, and the present study was undertaken with two objects in mind: (1) the over-all characteristics of sarcoidosis in the Armed Forces, and (2) an evaluation of liver biopsy in the diagnosis.

Sarcoidosis is recognized as a generalized reaction to some unknown stimulus. The complicating factor of many known stimuli showing the same pathological response makes its diagnosis complex. Its variability of course and poor response to most therapeutic agents cloud its prognosis and treatment. In the author's series, taken from a group considered representative of the Armed Forces generally, white patients outnumbered Negroes, and



there was no evidence of uveoparotid, skin, or bone involvement. Because this is a rather frequently examined group, it would appear that these types of manifestation may be later in development than those listed here. Involvement of the liver, found in necropsy material in 63 to 82%, and demonstrated by biopsy in 75% and in 73% of the cases biopsied, makes investigation of this organ of great importance in any attempt to establish a diagnosis in suspected cases. Involvement cannot be determined clinically on history and physical examination, because there may be no symptoms referable to the organ, and no enlargement or tenderness, although biopsy may show marked involvement. Initially available lymphoid tissue may be negative for any lesion, although the liver is affected. Evidence of sarcoidosis by liver needle biopsy probably is representative, and is a relatively harmless means of approach. Liver function tests show rather poor coordination with positive biopsy results, although persistently abnormal laboratory evidence should be followed by repeated biopsies, especially if there is a consistently positive and rising bromsulfalein retention. (Am. J. M. Sc., Aug. 1953, Col. R.S. Nelson, MC, USA)

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#### Acute Renal Insufficiency Due to Bichloride of Mercury

The clinical management of the oliguric patient still represents a difficult and challenging problem despite the advances in knowledge of the underlying pathologic physiology of acute renal insufficiency. The difficulties stem largely from the fundamental nature of the syndrome and the course it pursues, both of which render the patient particularly susceptible to many grave complications. The case described in this report illustrates a number of the complications, including massive gastrointestinal hemorrhage, and the important problem of British anti-lewisite (BAL) therapy in the oliguric patient is discussed in some detail.

Although BAL (2-3 dimercaptopropanol) has proved to be a highly effective antidote in bichloride of mercury poisoning, important problems concerning its clinical use remain in need of clarification. Certain observations that illustrate some of these problems have been made on this patient and 3 others who had also ingested bichloride of mercury and were given BAL.

The data collected from these 4 patients indicate that no accumulation of the drug occurs unless oliguria supervenes and that under such circumstances either a cumulative rise in serum concentration accompanies further administration of the drug or, if it is discontinued, a slow decline in concentration results. The possibility exists under such conditions that a larger than normal amount of BAL is eliminated by the lungs and that some is excreted by the intestine. Although no studies were performed to test these possibilities the cumulative rise in serum concentration of BAL that occurred in the case reported suggests that, at best, small and insufficient amounts were eliminated by these routes.

It should be re-emphasized that BAL must be given as early as possible. The interval between the ingestion of mercury and the institution of therapy should be measured in minutes rather than hours. The plan of BAL therapy described by Longcope and his associates is the one most frequently employed. Initially, an intramuscular injection of 300 mg. is given. This is followed within the first 12 hours by 2 or even 3 additional injections of 150 mg. each. During the next 12 hours 1 or 2 more injections of 150 mg. each, are given. Depending on the patient's condition, therapy employing 150 to 300 mg. a day may be continued over the subsequent day or two.

On the basis of the limited amount of data available no conclusive answer can be given to the problem of continuing therapy after oliguria is established. The authors' present policy is to discontinue therapy if the patient's condition permits. If the advisability of such a course seems questionable, the drug is continued but the dosage is reduced to 75 or 100 mg. a day. The amount is given in 2 or 3 divided doses, and the patient is closely observed. The drug is immediately discontinued if any toxic reactions appear.

BAL therapy alone is not the only consideration in the initial phase of treatment. Equal or even greater emphasis must be placed on the prevention of circulatory collapse. A bladder catheter should be inserted, and fluids given in liberal amounts as long as adequate urine volumes are passed. The combination of adequate amounts of BAL, given early, and the administration of sufficient quantities of fluid should reduce the occurrence of renal failure to a minimum. (New England J. Med., Aug. 13, 1953, LT P. D. Doolan (MC) USN, W. C. Hess, and L. H. Kyle)

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#### Oral Mercurial Diuretic

The role of organic mercurials in the treatment of congestive heart failure has been well established. It is generally accepted that the parenteral route is the most effective mode of administration for a rapid and immediate diuresis. For maintenance purposes, however, oral therapy would be superior provided an effective and nontoxic preparation were available. The purpose of the study was to investigate clinically such a new oral mercurial diuretic, 3-chloromercuri-2-methoxypropylurea (1347 EX) (Neohydrin).

Neohydrin is a product resulting from the combination of mercuric acetate with allylurea in methyl alcohol. The preparation is made in the form of an uncoated tablet containing 18.35 mg. of the compound equivalent to 10 mg. of mercury.

For many years organic mercurials have been used in the treatment of congestive heart failure. Intravenous, intramuscular, and subcutaneous



preparations have been the preferred routes of administration. However, certain disadvantages and limitations to parenteral therapy exist. Frequently, complications have arisen from too rapid a diuresis, e. g., attacks of gout and tetany have been precipitated as well as the "low salt syndrome." Cerebral thromboses also have been blamed on too vigorous therapy. Similarly overdigitalization has been commonly observed following the sudden elimination of large quantities of fluid from the body. Pain at the site of injection is frequently experienced with parenteral therapy. Administration of the mercurial parenterally requires the service either of a physician or of a nurse, thus adding to the economic burden of the patient or community.

Because ease of administration and a steady diuretic effect would be expected of an oral mercurial, many attempts have been made to find an effective and nontoxic oral preparation. Most of the oral mercurials tried heretofore have been poorly tolerated, giving rise to stomatitis, gingivitis, abdominal cramps, vomiting, or diarrhea. The effectiveness of the oral preparations generally has been below that of the parenteral drugs.

Handley and associates have shown in the dog that Neohydrin given intravenously had 3 to 4 times the diuretic potency of meralluride (mercuhydrin). Chronic toxicity studies revealed no essential difference between the new compound and meralluride if the greater diuretic potency of the former was considered and the dosage adjusted accordingly. The acute cardiac toxicity of Neohydrin appeared to be less than that of meralluride. Griener and coworkers have bio-assayed the new oral mercurial and have demonstrated that this compound possesses three-fourths the diuretic potency of the standard (mercuhydrin by intramuscular administration). All other oral preparations so far tested have come no nearer than one-fourth the diuretic potency of the standard.

The authors' experience with Neohydrin orally suggests that it has promise as an adequate oral mercurial diuretic without undue toxic effects. It is worthy of further trial. (J. Lab. & Clin. Med., Aug. 1953, B. M. Kaplan, I. H. Zitman, S. D. Solarz, G. Miller, J. S. Mehlman, and L. G. Kaplan)

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#### Scleredema Adultorum

Scleredema adultorum, first described by Buschke, is a rare systemic disease characterized by generalized nonpitting edema of the body unassociated with fever, loss of weight, or much evidence of illness. It is preceded by an acute infection, usually respiratory, and of streptococcal origin. There follows an asymptomatic period, varying from a few days to several months, although occasionally there may be a prodrome of malaise, myalgia, and low-grade fever. Then begins a pale, firm swelling of the skin, commencing as a rule at the nape of the neck and referred to by the patient as a

"stiff neck." It spreads to the face, chest, trunk, and abdomen, and, to a less extent, the extremities. The evolution of edema is rapid, being sometimes a matter of only 2 or 3 weeks. A slow regression commences soon, which may take from 1 to 8 months. Isolated patches or islands of edema may persist as long as 30 years. Recurrence is not uncommon, sometimes after many years, but recovery is usually without sequelae. The systemic nature of the disease is exemplified by patients exhibiting pleural, pericardial, peritoneal, or joint effusion.

Over 100 cases have been described, and a number of excellent reviews have appeared. Although the age range is from birth to the seventh decade, approximately 50% of the cases reported occurred during childhood and adolescence; hence the name is misleading. Twice as many females were affected as males. The manifestations of the disease have been of interest chiefly to dermatologists and internists. Ocular involvement in scleredema has been reported only once in the ophthalmic literature.

A case of scleredema adultorum is described, with chronic edema of the lids and conjunctiva of 8 years' duration. A peculiar type of lymphangiectasia was present in the conjunctiva. In addition, there was a secondary, trophic corneal disturbance (superficial punctate keratitis).

Experimental correlations are described which suggest that the disease may be due to a systemic disturbance following an initial infection, which produces a change in the ground substance of the mesenchyme, the alteration being mediated by estrogens or related adrenocortical steroids.

Scleredema suffers from an unfortunate similarity in name to scleroderma, and the literature is filled with erroneous classifications of cases. There is little actual similarity between the two diseases. Early diffuse scleroderma may be confused with scleredema, but in the former there may be prodromal articular and vasomotor signs, waxy sheen, and sclerodactylia, and, later, atrophy, hide binding, and pigmentation. Biopsy reveals a different lesion, and the prognosis is poor.

Dermatomyositis has a febrile course, with muscular weakness, tremor, erythema, tenderness, and edema of the skin. Atrophy occurs, and the prognosis is poor.

Myxedema may closely resemble scleredema; however, it is characterized by changes in basal metabolic rate, elevated blood cholesterol, dry scaly skin, involvement of the hands and feet, and therapeutic response to thyroid. Nevertheless, histochemical similarities do exist between the two diseases involving the hyaluronate-hyaluronidase relationship.

Other edemas, such as lymphedema, angioneurotic edema, trophedema, and cardiorenal edema, must be ruled out.

Sclerema neonatorum is a disease of marantic infants, with dehydration and severe constitutional symptoms. It is another example of unfortunate terminology, because scleredema is sometimes called sclerema.

Subcutaneous fat necrosis may bear a vague resemblance to scleredema but has a different history and course.



There is no effective treatment; the condition runs its course, and the prognosis is good. Fever therapy and use of radiant heat are of some benefit. (Arch. Ophthalmol., Aug. 1953, G.M. Breinin)

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### Toxic Effects of Modified Human Globin

Modified human globin is a product of the controlled alkaline hydrolysis of globin derived from human erythrocytes. Chemical studies have indicated that this product is a mixture of several substances, of which 80% consists of protein fragments with a molecular weight of about 34,000. Measurements of the plasma volume have shown significant increases after intravenous administration of solutions of this material to normovolemic human subjects. Globin solutions have been given successfully in the treatment of hemorrhagic shock and hypoproteinemia. The reported toxic reactions produced by this material have, in general, been minor. The chief reaction has been the appearance during the infusion of flushing and pruritus which tended to disappear when the rate of infusion was slowed. A few recipients of modified human globin have developed pyrogenic reactions. Two patients voided red urine after receiving modified human globin.

Because none of the generally available forms of protein for intravenous administration is entirely satisfactory, a study was undertaken to determine the advantages and disadvantages of modified human globin, both as a nutritional supplement for intravenous use, and as a plasma substitute.

The appearance of reactions seemed to be related to the speed of infusion of globin. The rapid infusion of an 8% solution gave marked reactions, while 4% globin, either in 5% dextrose solution or in distilled water, administered slowly gave less severe, but similar, reactions.

Single rapid infusions of modified human globin produce reactions manifested by erythema, pruritus, urticaria, fever, hemoconcentration, and an increase in red cells, white cells, and casts in the urine.

Repeated slow infusions result in anorexia, an increase in the serum gamma globulin, elevation of the erythrocyte sedimentation rate, and an increase in the red cells, white cells, and casts in the urine which may progress to gross hematuria.

In 1 patient studied by balance methods only about one-fourth of the administered globin was retained in the body; there is evidence to suggest that this amount was not metabolized but was stored unchanged.

The toxic reactions from the intravenous administration of modified human globin indicate that the material in its present form is not suitable for use as a plasma substitute. The observed hemoconcentration and renal changes are highly undesirable in the treatment of shock. In addition, the anorexia produced by repeated infusions of globin is undesirable in the management of undernutrition and hypoproteinemia. (J. Lab. & Clin. Med., Aug. 1953, Maj. I.C. Plough, MC, USA, Capt. P.E. Teschan, MC, USA, and Capt. D. Seligson, MC, USA)

### Be, a New "Private" Blood Factor

The recent rapid advances in the knowledge of blood antigens have been made possible by: (1) discovery of more sensitive technics for detection of isoantibodies; (2) the finding that in the course of heterospecific pregnancies isoantibodies, occasionally of extreme specificity, are being produced; and (3) the constantly increasing use of blood transfusions, with a rise in both the total number of patients transfused and the amount of blood given to individual patients. Thus, the opportunities for immunization with rare antigens, as well as for detection of rare natural and immune antibodies have multiplied. These circumstances are no doubt responsible for the fact that, at the present time, 8 independent blood group systems are recognized in contrast to the 3 known before the Rh-Hr system was discovered. In addition, several rare blood cell antigens have been described during recent years, which have been called "private factors" because of their occurrence in one family only, or, respectively, because of their absence in one family.

The agglutinin reported in this article proved so far to be confined to some members of one single family and hence can be classed among the "private" blood factors. In a recent review, Levine summarized reports on 5 such factors. The high titer of the anti-Be<sup>a</sup> antibody is as noteworthy as its property to react with enzyme-treated cells. The fact that the titer is considerably higher at 37° C. suggests an immune origin.

Two practical implications are suggested by this report:

1. There seems to be little doubt that the sensitization in the patient was brought about by a combination of two stimuli: (a) transfusion with her husband's blood after the first pregnancy, and (b) subsequent pregnancy with a fetus carrying an agglutinin inherited from the father and absent in the maternal red cells. It is generally agreed that likelihood of isosensitization to the more common Rh and Hr antigens and its intensity are greatly enhanced by combination of transfusional and gestational immunization. For this reason, it cannot be overemphasized that husbands should not be used as blood donors for their wives; students and practitioners of medicine should be impressed with this fact. This is important because in accidents or other emergencies the husband is usually thought of as the most likely source of blood for his wife, as soon as it is known that there is no ABO incompatibility. Even the absence of Rh incompatibility does not exclude the danger of sensitization by other known or unknown blood antigens.

2. When the cause of hemolytic disease of the newborn is being considered, the demonstration of sensitization of the mother to a blood factor of the husband and child is essential. The most reliable and most sensitive method for establishing serologic blood group incompatibility is testing of the serum of the mother with red cells of her husband and/or of the infant. Suitable preliminary neutralization of isoantibodies in the mother's serum may be required. Too often only routine screening tests with cells of known Rh types are done, and negative results are accepted as conclusively demon-



strating absence of isosensitization. In this way, incompatibility caused by rare agglutinogens may be easily overlooked and the opportunity missed to detect new red cell antigens and antibodies. (Blood, Aug. 1953, I. Davidsohn, K. Stern, E.R. Strauser, and W. Spurrier)

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### Studies on Blood Stored in Plastic Bags

The introduction of polyvinyl bags as containers for the storage of blood is a distinct advantage in blood-banking technic. It is now possible to draw blood and administer it using nonwetable surfaces throughout, with the possible exception of the needles, and even these can be treated with silicone.

The plastic bags provide other advantages. They are light in weight, easily stored, nonbreakable, and permit a completely closed gravity system, which undoubtedly reduces hemolysis. The plastic permits the easy application of pressure, when indicated, to force the blood rapidly into the patient's vascular tree during an emergency. The completely expendable nature of all the equipment will, to some extent, reduce the incidence of pyrogenic reactions and homologous serum jaundice.

Despite these obvious advantages the following questions must be answered before the plastic bags can be unreservedly recommended: (1) What chemical and hematologic changes occur when blood is stored in plastic? (2) Will the blood be as well preserved as in glass? (3) How do the recipients respond to the administration of blood stored in plastic?

The studies outlined indicate that the plastic bags now available are as satisfactory as glass for the preservation and storage of whole blood. The nonwetable surface of the bag tends to slow coagulation and is a further advantage.

From a study of the chemistry of stored blood it appears that there is an imbalance between the shift of sodium from the plasma, presumably into the erythrocytes, and potassium out of the cells. Whether this imbalance is caused by changes in the cell membrane or some other factor is not clear, but it may reasonably be assumed that the increased sodium content of the cell produces a need for increased intracellular volume and this in turn accounts for the increase in fragility to saline. The factor of oxygen want in the stored blood undoubtedly plays a role in these changes.

The other changes that occur, such as decrease in prothrombin activity, death of leukocytes, and destruction of platelets, follow the pattern of blood stored in glass and require no comment.

The carbon dioxide combining power of the banked blood is low but this has no significance except that it is inherent in the solution used. The plastic bag per se apparently plays no role in this change. (Am. J. Clin. Path., Aug. 1953, R.O. Muether, A.J. Sommer, and B. Koster)

### Microscopic Studies of the Secretions of the External Auditory Canal

The increased attention focused on inflammations of the external auditory canal indicates the need for a simple and rapid method of diagnosis, prognosis, and treatment of the various diseases of the ear. It is generally agreed that a careful study of the cellular elements of the external ear aids materially in the differential diagnosis of diseases affecting the middle and external ear.

In the current study it was found that a differential diagnosis can be made of such diseases by examining pretreatment smears and "serial slides" of secretions of the external ear. In this way, the course of the disease and its response to treatment can be followed.

Although there are many reports of bacteriologic studies of the secretions of the external auditory canal, only an occasional reference to the cytology of these same secretions has been found.

A differential diagnosis of external otitis can frequently be made by a study of the secretions from the diseased external auditory canals. It is necessary for the clinician to acquaint himself with the cellular elements which are present in normal and pathologic secretions so that he may recognize and interpret the significance of these elements. Once the clinician becomes familiar with the morphology of the various diseases and the cellular components found in the secretions of such diseases, a more rapid means of diagnosis and treatment will become available to him.

It is suggested, on the basis of the microscopic findings and for the purpose of classification and treatment, that the disease entity referred to as acute diffuse external otitis be divided into complicated and uncomplicated subtypes.

Further studies of the cytologic changes in the various categories of external otitis, otitis media, and mastoiditis should make possible more accurate diagnosis and prognosis. (Project Report No. 21-1601-0006, No. 1, Air University, USAF School of Aviation Medicine, Randolph Field, Tex., May 1953)

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### Cancer of the Tongue

Cancer of the tongue poses the most pressing therapeutic problem of all intraoral cancer. Although in terms of incidence it is not the most common cancer in the area, it causes more deaths than any other cancer of the head and neck. Reports of highly selected early cases of cancer of the tongue suggest cure rates as high as 56%. However, most clinics reporting their over-all results observe 5-year survival rates in the area of 14 to 28%. Survival falls off even more precipitously in those cases with involved regional



lymph nodes so that under these circumstances Gibbel, Cross, and Ariel were able to report only a 4.6% survival rate, and Sir Stafford Cade a 9.2% 5-year survival.

Radiation, cautery excision, or conventional surgical excision of the primary growth have all had their advocates. For permanent control of metastatic cancer to the regional cervical lymph nodes, however, there is broad agreement that radical neck dissection is the procedure of choice. For the most part these modes of therapy have been applied in a discontinuous fashion with attention being directed to the cervical glands only after the primary growth had been treated with reasonable assurance of permanent eradication. In 1948, the author first attempted, and subsequently published, a technique of surgical management of cancer of the tongue which applied classical concepts of cancer surgery to this lesion; namely, a primary combined en bloc resection of the tongue, floor of the mouth, and cervical lymphatics. To date this operation has been performed on 23 patients. This article reports an investigation of the findings and subsequent course of these patients. It should be stressed that additional time is necessary before a final appraisal of the results can be made. However, evaluation at this time seems appropriate to assess the achievement to date.

Criteria for operability were as follows: (1) The lesion was confined to one-half of the tongue and/or floor of the mouth and did not grossly extend beyond the midline. (2) Lesions arising primarily in the base of the tongue were excluded because these are highly undifferentiated growths and are ordinarily quite radiosensitive. Moreover, satisfactory reconstructive techniques after sacrifice of the base of the tongue are not as yet available. However, resections as far posterior as the epiglottis have been carried out in this group of patients. (3) Clinical evidence of regional lymphatic involvement was not looked upon as a contraindication unless the nodes were massively enlarged, agglutinated, and fixed. (4) Age in itself was no contraindication. Four of the patients were over 70 years of age.

Of the entire group of 23 patients, 17, or 74%, are living and free of demonstrable disease. Five developed recurrent disease and 1 died postoperatively of unexplained fever. Nineteen patients had been operated upon over a year prior to the period of evaluation. Of these, 13, or 68%, are living and free of demonstrable recurrence.

Of 11 patients with histologically positive lymph nodes, 6 are dead or living with a recurrence (including 1 postoperative death). Five patients are alive and well 48, 33, 18, 12, and 10 months from the time of their operation. Of the 12 with histologically negative lymph nodes, all are alive and free of recurrence.

The operation as described has been shown to yield acceptable cosmetic and functional results. There has been some difficulty with speech in the early postoperative period but after a period of adjustment these patients have regained sufficient proficiency to be able to converse satisfactorily. Similarly the ability to eat and swallow poses a problem in the early postoperative

period. However, with time they have been able to take enough by mouth to satisfy both their nutritional requirements and their gustatory desires with minor restrictions. Most of those that had been gainfully employed were able to return to their previous duties. (Minnesota Med., Aug. 1953, A. J. Kremen)

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### Localization and Management of Foreign Bodies in the Esophagus

This article is primarily concerned with the management and roentgenologic procedure of localizing foreign bodies in the esophagus. The roentgen localization of nonopaque foreign bodies in the esophagus is at times very difficult and one must often depend upon the clinical manifestations to determine the necessity for esophagoscopy. Usually the condition is acute and the patient is in such great discomfort that in almost every instance the foreign body must be meticulously sought after and removed as quickly as possible. Radiable foreign bodies, on the other hand, present little difficulty in localization. Overlying anatomic structures such as calcifications which are normally seen in the cervical portion of the esophageal area must be eliminated.

Clinically, there are 2 characteristic features which stand out prominently. (1) The persistence of pain or discomfort in the esophagus, and (2) the persistent localization in a circumscribed area, so that the patient can place a finger at the level where the foreign body is lodged. The vast majority of foreign bodies in the esophagus are located in the cervical portion where there is normally some narrowing of the lumen. The narrowing is chiefly noted in 2 areas, (1) at or near the cricopharyngeus, and (2) at the level of the sternal notch or thoracic inlet.

The localization and management of foreign bodies in the esophagus are best carried out by close teamwork of the roentgenologist and esophagoscopist. The swallowing of a foreign body is often an emergency which requires immediate attention. The use of all available clinical and roentgenologic procedures is often necessary to localize these foreign bodies. Regardless of whether or not they are demonstrable, attention to the clinical manifestations is highly important. Although the esophagoscope can be used as a diagnostic measure as well as for the removal of the foreign body, it should be used carefully. First, it is important to localize the foreign body if possible before esophagoscopy so that the operator may have a prior knowledge of its location. Second, the esophagoscopist may not see the foreign body or may push the instrument over or beyond it, or the instrument may force the foreign body deeper into the tissues. Occasionally the esophagoscope may loosen and disengage the foreign body and it will either be swallowed or brought up with or after the esophagoscope. The author found the use of a bariumized pledget of fluffed cotton to be a safe procedure. He has not



experienced any complications following its use in over 100 cases. (Am. J. Digest. Dis., Aug. 1953, M. Feldman)

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### Needle Biopsy of the Kidney

The recent report of Iversen and Brun describing a method of aspiration biopsy of the kidney led the authors to apply a modification of this technic to the study of the renal pathologic changes in multiple myeloma. It was their impression that 2 significant contributions could be made: (1) application and possible simplification of a valuable new clinical procedure, i. e., needle biopsy of the kidney and (2) demonstration of the pathologic alterations occurring in the kidney during the course of multiple myeloma.

The prothrombin and bleeding times were determined a day or two prior to the contemplated biopsy. The procedure was believed to be contraindicated only in the presence of a definite bleeding tendency, suspected perinephric abscess, hydronephrosis, or renal malignancy.

The patient was given 1 ounce of licorice powder the evening before and an enema on the morning of the planned biopsy. Breakfast was withheld. A small, 0.5 by 0.5 cm., lead marker was affixed with adhesive to the skin of the back overlying the expected anatomic position of the right kidney. A 14 by 17 inch upright, anteroposterior x-ray of the abdomen was taken. In the great majority of cases the renal outline was clearly seen and the relative position of the marker noted. The anticipated biopsy site, ideally at the lateral margin of the lower pole of the kidney, was selected by means of skin localization utilizing the relative position of the lead marker.

The biopsy was carried out at the bedside with the patient in a sitting position. The skin was prepared with one of the usual sterilizing solutions. The skin site and subcutaneous tissues in a direct anteroposterior line were liberally infiltrated with 1% procaine solution. By means of a 3-inch, 22-gauge needle, an attempt was made to anesthetize the tissues to the anticipated level of the renal capsule. A Vim-Silverman needle was then introduced to the same depth as the infiltration needle, advanced about 3 cm. further, and the biopsy was carried out. The specimens were immediately fixed in 10% formalin solution. All patients were carefully observed during the subsequent 8-hour period and each specimen of urine voided in the ensuing 24 hours was examined microscopically.

The technic of anteroposterior and lateral intravenous pyelography for determining the distance from the skin to the posterior surface of the kidney was used by Iversen and Brun. In the authors' hands this method has proved to be no more valuable than the localization outlined here. In addition, the single x-ray tended to simplify the necessary preparation.

Despite the fact that considerable disagreement exists regarding the pathogenesis of renal insufficiency when it occurs in multiple myeloma, it

is well accepted that alteration in renal function is manifested by a low or fixed specific gravity of the urine with loss of concentrating power, and by albuminuria, nitrogen retention, and secondary anemia. Bence-Jones proteinuria may be present. Other signs which frequently accompany chronic renal disease, such as edema, hematuria, hypertension, and retinitis, are usually absent in the renal insufficiency associated with multiple myeloma. It has been demonstrated that the glomerular filtration rate is impaired to an equal or greater extent than the tubular excretory capacity. The filtration fraction is not consistently altered. These findings suggest that glomerular as well as tubular changes occur but the absence of a consistent fall in filtration fraction argues against a primary or predominant glomerular lesion.

All of the cases in the present series were found to be anemic and all had albuminuria, of varying degree. On repeated examinations Bence-Jones protein was found in the urine of only 2 of the 5 patients. There was an alteration of the specific gravity of the urine in 4 cases. Abnormal urinary sediment was present in 4 cases and in 3 a significant degree of nitrogen retention was persistently found. Every case had x-ray evidence of myelomatous involvement as evidenced by single, multiple, and/or diffuse osteolytic lesions. With the exception of 1 case, whose disease was considered to be in an early phase, the patients had striking complaints of bone pain.

The authors believe that the amount of renal parenchyma removed by biopsy is adequate to study the tubular changes and that these changes are representative of the remaining tissue. This was well demonstrated in the 2 cases in which autopsies were performed subsequent to needle biopsy. Examination of the kidney in this manner, however, may not reflect the true picture of other renal disturbances, such as chronic pyelonephritis or arterionephrosclerosis.

The changes in the renal tubules in these cases were characterized by a slight to moderate swelling of the renal tubules which in an occasional zone gave a positive Schiff reaction. All 5 kidney biopsies showed the presence of protein precipitate and hyaline casts in the tubular lumens, only a few of which gave a positive periodic acid Schiff reaction. The authors did not observe Bence-Jones protein deposits in the cytoplasm of the tubules in the 2 cases showing this substance in the urine. Casts and calcium were found in the tubular lumens and in areas of interstitial fibrosis but the authors cannot consider these to be characteristic of multiple myeloma. The foci of interstitial fibrosis were at sites different from the zones containing the casts and were not a reaction to the latter. Another feature of this material is that it did not appear to be more extensive or different from many other kidneys which the authors have examined in which no multiple myeloma was present. Congo red stains of the cases herein reported showed no evidence of amyloid deposition in the tissues.

The material obtained by biopsy was adequate for diagnosis and was comparable to the post-mortem material obtained in 2 cases. A biopsy specimen adequately demonstrates parenchymal lesions of a diffuse nature.



Hematoxylin eosin, elastica van Gieson, Congo red, and periodic acid Schiff stains were used on all material. No pathologic findings were demonstrated that could be considered specific for multiple myeloma. (Am. J. Med., Aug. 1953, H. P. Greenwald, G. J. Bronfin, and O. Auerbach)

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### Hospital Personnel Shortage

The Health Resources Advisory Committee of the Office of Defense Mobilization has for some time been disturbed by the shortage of health manpower in this country, particularly with the critical situation in many hospitals. A Subcommittee on Hospital Services has been appointed which is responsible for the collection, analysis, and dissemination of the available knowledge in this field. This Subcommittee is made up of a distinguished group from the fields of hospital and nursing services. As one of its first actions the Subcommittee is preparing a handbook on personnel utilization in hospitals for use by all who are concerned with personnel shortages. The handbook will be made up of a series of pamphlets, each dealing with one specific problem. The first will be ready for distribution this fall.

Shortages in the health fields have an impact one on the other. In the hospital because the nurse who provides bedside care is at all times close to the patient, she is the logical coordinator of the activities involved in bedside care and, in the absence of more appropriate personnel, she even provides necessary nonnursing patient services. The shortage of hospital nursing personnel is critical and is heightened by personnel shortages in other hospital departments.

The increased demands for nursing and nurses have far out-stripped the supply. It is important to remember, however, that professional organizations have in fact kept up a splendid recruitment program. Despite the increasing competition for women in other professional fields and in industry; (1) More nurses are practicing their profession than ever before. In addition, nurses who have retired from practice (mostly because of marriage) form a large pool potentially available in the event of a national emergency. (2) A larger proportion of girls are entering nursing than ever before (the proportion now is higher than at anytime except for the period 1943-1945). But, because of the low birth rate in the depression years, the number of girls who enter nursing school each year is now lower. (3) The average working life of a nurse is longer than ever before, largely because many more married nurses are working.

The increased total volume of available nursing services, however, still does not meet the increased demands for nursing services. There is, therefore, but one inescapable conclusion--there are not enough nurses to meet the hospital demand and there is no indication that there will be in the foreseeable future. This problem can be solved only by modernization of personnel utilization techniques.

The Department of Defense has reduced the drain of nurses from civilian hospitals by the establishment of a policy of utilizing nurses only at their highest skills. This is a step in the right direction and has resulted in substantially reduced ratios of graduate nurses to servicemen in the Armed Forces.

In view of the critical shortage of nurses, the Health Resources Advisory Committee urges all civilian hospital governing boards, medical and dental staffs, administrators, and nurse directors to give immediate attention to devising means of providing adequate care to patients without expanding and, in some instances, by reducing their nursing staffs. Such action in each hospital is essential to the solution of this problem.

Dispassionate scrutiny of each task within the hospital will show whether it is really necessary for the welfare of the patient and whether it is being performed in the most economical manner from the standpoint of time and choice of personnel. In such an analysis, it will become clear that in many instances new medical technology has made existing routines unnecessary. Many current hospital routines are based on assumptions which are no longer valid.

A review of personnel utilization studies which have been made in both military and civilian hospitals has shown that certain changes have proved successful in many hospitals. Each hospital which follows through on these steps and enlists in the all-out effort to solve the problem will have gained much. Numerous hospitals already are making progress; not even one can afford not to do so. The key to the solution lies within the individual hospital. (ODM, Health Resources Advisory Committee, August 1953, "Meeting Your Hospital Personnel Shortage" (pamphlet) )

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#### Observations on Blood Sludging

This article is presented to stimulate the interest of the oculist in the slitlamp interpretation of blood sludging, because many cases regarded as demonstrating early evidences of blood sludging and pathologic conditions are really showing variations of normal circulation.

Adler rightly notes "the variation in the appearance of the capillaries and arterioles in the (normal) conjunctiva of man may vary from vessel to vessel so that caution must be observed in connecting changes found with a particular disease or even for that matter interpreting them as indicating a disease state."

To date no ophthalmic article has appeared on the subject of blood sludging of the conjunctival vessels, yet the number of papers on blood sludging by men in other fields is increasing day by day. These articles are grouped in a paper entitled "Annotated bibliography of sludged blood," and show that intravascular agglutination has become identified as the cause



of specific pathologic findings and plays a role in many conditions varying from shock, burns, and toxemia of pregnancy to mental disease.

The term sludge, coined for intravascular agglutination by Knisely, describes a suspension of solid or semisolid particles in a fluid, in this instance, red cells in plasma. The capillaries through which blood is flowing normally vary from a little less than one to as much as two to two and one-half times the diameter of the passing red cells. This is true of the arterioles and capillaries of the bulbar conjunctiva of human beings where red cells usually are a little less than  $8.0\mu$  in diameter.

The difficulty in interpretation of the significance of blood sludging can be seen in the opposite viewpoints of Knisely and Laufman. Knisely and his coworkers examined 50 normal individuals and found no blood sludging. Laufman and his coworkers found sludge varying from nothing to plus four in the same individual over a period of a week. They also found it varied during parts of the day and observed that, before and during menstruation, sludge occurred even though it was not present before. The author has also found this to be true. No evidence of infection, either low grade or severe, or any other demonstrable pathologic process was detected.

Robertson, Wolf, and Wolff examined 5 normal subjects daily for 10 minutes and noted day-to-day changes in sludge.

It appears to the author that agglutination into clumps with spaces of clear plasma between them constitutes a typical example of sludge and not temporary columnar adherence of red cells to one another in a small vessel in which the circulation is slow. When one examines a case with a high sedimentation rate all vessels, including the aqueous veins, show the sludge, not just one part of one vessel.

The definition of sludge should be stabilized and those findings localized to one vessel in an area where the blood column is slowed, either by direction or localized constriction, should be eliminated.

During the past year, 150 cases that showed sludging were studied for correlation of the sludging and other factors; 50% showed an increase in the sedimentation rate. All cases with sedimentation rates above 30 mm. showed marked sludge. In 50%, there was local sludging with no increased sedimentation rate. This finding is consistently present in cases of anxiety.

Sedimentation rates should be determined in all cases which show marked sludging. Because anemia, infection, and malignancies, as well as pregnancy after the twelfth week, show increased sedimentation rates, a better understanding of the patient may be gained thereby. It should be remembered, however, as pointed out by Knisely in an, as yet, unpublished paper, that there are false-positives as well as false-negatives in the sedimentation rate. (Am. J. Ophth., Aug. 1953, I. Givner)

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### Management of Upper Gastrointestinal Hemorrhage

Two hundred and forty-six patients were found to fall within the general criteria of having had a "massive" or "severe" hemorrhage, viz., a fall in red blood cell count to 3 million or less, the hemoglobin to below 8.0 gm. per 100 cc., or a state of blood volume insufficiency requiring the immediate replacement of at least 1,000 cc. of blood.

All patients with gastrointestinal hemorrhage were admitted to the Medical Service, but the surgeons were promptly notified of such admission and saw each patient within 4 hours. The authors' interests were directed toward five spheres: (1) treatment of shock and restoration of adequate circulating blood volume; (2) medical control of bleeding; (3) investigation of the source of bleeding; (4) study of the patient for evidence of significant complications, including systems other than the gastrointestinal tract, and (5) estimation of rate and manner of bleeding.

An infusion of 5% glucose in normal saline was promptly begun and the patient's blood cross-matched. It has been recognized for many years that hematemesis is one of the cardinal symptoms of the truly major hemorrhages. If this symptom is present, and red rather than tarry stools are passed, one can safely assume that one or more liters of blood have been lost and plan replacement accordingly. The authors believe that blood transfusions are the backbone of therapy and should be administered as soon as cross-matching can be performed and at a speed and volume necessary to maintain the hemoglobin above 10 gm. per 100 cc. and the red cell count above 3.5 million. This insures an adequate blood volume reserve so that, should bleeding recur, irreversible shock will not appear. The pulse, blood pressure, stools, vomitus, and transfusions were all charted together to present a complete graphic picture of the patient's course.

It has often been demonstrated that a program of feeding is very effective in the moderately bleeding ulcer patient, and such a routine should be followed, because 75% of all bleeders have ulcers. However, the patient who is vomiting frequently will not retain food. As the blood in his stomach is a good buffering agent and he is apt to be a surgical candidate, the authors withhold food until several hours have elapsed since the last hematemesis. They then feed small amounts of milk, Jello, or custard hourly, day and night, and in the proved ulcer patient add calcium carbonate, with or without magnesium oxide, between feedings. Aluminum hydroxide gel and magnesium trisilicate are so apt to produce severe fecal impactions that they are best omitted until bleeding has ceased, when they can be substituted for the calcium carbonate. Vitamins C and K are arbitrarily and not too scientifically employed in large doses in the initial intravenous solution and daily thereafter. Sedation of the ulcer bleeder, except the elderly, must be effective and is best accomplished by combinations of parenteral Demerol and sodium luminal alternating every 4 or 6 hours. Morphine is too apt to evoke vomiting and need rarely be used. The patient with cirrhosis should of course receive



only a small initial dose of sedative. Atropine in 0.7 mg. doses is injected subcutaneously every 6 hours in the young ulcer bleeder. It should not be administered to the elderly or the alcoholic, as it is very apt to initiate a toxic psychosis in the latter. Buffered thrombin is recommended only for patients with gastritis, or if other measures have not been effectual in stopping ulcer bleeding. The authors have used this therapy in over 25 patients and have not been impressed with a frequent coincidental cessation of hemorrhage.

The determination of the source of hemorrhage has become increasingly important now that effective surgical treatment is available not only for the ulcer patient but also for the control of the esophageal varix bleeder. The history must be carefully sifted for previous ulcer symptoms, and a history of alcoholism or jaundice cannot be taken lightly. The physical examination, if normal except for epigastric tenderness, suggests ulcer, but the presence of a large liver and numerous spider telangiectases does not rule out the presence of an ulcer--in fact, 16% of the patients with cirrhosis had peptic ulcer as well.

The authors now make an emergency gastrointestinal x-ray examination of all patients over 40 years of age as soon as they have been brought out of shock, and regardless of previously diagnosed gastrointestinal lesions. The films are then reviewed by all members of the team.

The internist plays a major role by quickly determining the presence of complications from the history and physical examination, plus certain minimal laboratory tests: urinalysis for diabetes or nephritis, the blood smear for abnormal white cells or insufficient platelets, the prothrombin time and bromsulfalein test for hepatic function, the electrocardiogram for evidence of cardiac disease, and the chest roentgenogram for evidence of tuberculosis or tumors. Most of these determinations can be made while the patient is being brought out of shock, so that important recommendations can be made to the other team members upon completion of the emergency gastrointestinal x-rays. Heart disease is not a contraindication but, rather, an indication for early surgery. Ulcers located beyond the duodenal bulb, so-called second portion or postbulbar ulcers, are particularly apt to involve the posterior duodenopancreatic artery, with the increased rate of bleeding found in the arterial spurter. The authors consider the finding of such an ulcer on x-ray to be second to gastric ulcer as an accessory indication for early operation. Age in itself is not a stimulant for early surgery, but the vascular problems so frequently accompanying this involution are. The finding of vascular insufficiency of any major organ is an indication for operation.

The authors also believe that if no source for bleeding has been found by the various examinations, and the hemorrhage continues at a rate of over 3 L. of blood a day for more than 48 hours, then further delay without operation is not justified. (Ann. Int. Med., Aug. 1953, T.A. Warthin, F.P. Ross, D.V. Baker, Jr., and E. Wissing)

Medical and Dental Military Symposium

The Third Medical and Dental Military Symposium under the auspices of the First Naval District will be held at the U.S. Naval Hospital, Chelsea, Mass., from 12-14 Oct 1953. Civilian physicians and dentists and members of allied sciences, in addition to those of the Armed Forces, are cordially invited to attend. The subjects will be presented by speakers of outstanding prominence in their specialties and are varied enough in scope to be of interest to civilians as well as military personnel.

The Chief of Naval Personnel has approved the Symposium for retirement point credit for those Reservists not on the Inactive Status List. One retirement point credit will be awarded for each of the 3 sessions attended providing the duration of the meeting is at least 2 hours. Appropriate duty orders are authorized for those who request them. Requests for orders should be submitted to the Commandant of the home Naval District. A representative of the District Medical Office, First Naval District, will be present to record the names of those attending. (Hdq., 1ND)

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From the Note Book

1. A new type training aid to assist in teaching naval dental officers emergency casualty treatment has been developed by the Naval Dental School, National Naval Medical Center, Bethesda, Md. It is a life-size manikin made of plastic reinforced with fiberglass. It was fabricated from a sculptured model and so positioned on its base as to facilitate demonstrations of various first aid problems. Six first aid problems likely to be encountered in cases of emergency or mass casualties can be visually demonstrated on the manikin. Also, the accepted first aid care for each of the problems can be effectively demonstrated. The six problems are: A leg wound, an arm wound, an abdominal wound, a penetrating chest wound, choking caused by a foreign body in the throat, and bleeding from the mouth caused by a fracture of the jaw. Commander John V. Niiranen, DC, USN, other members of the staff of the Naval Dental School, and Mr. William C. Young, a civilian employee of the Audio-Visual Department, Naval Medical School, designed the training aid. (TIO, BuMed)

2. Initial distribution of 200 advance copies of the new 1953 edition of the Handbook of the Hospital Corps is being carried out within the Bureau of Medicine and Surgery. General distribution to field activities will be made by the Naval Supply Depots at Scotia, N. Y., and Spokane, Wash. The initial distribution to field activities is under the control of the Bureau of Medicine and Surgery and is being made on the general basis of 1 copy for each 3 Hospital Corpsmen (or less) on board. No personal copies of the new Hospital



Corps Handbook are being distributed. These may be purchased from the Superintendent of Documents, Government Printing Office, Washington, D.C., at \$4.50 per copy. (TIO, BuMed)

3. Captain James J. Saperro (MC) USN, Deputy Director, Preventive Medicine Division, was designated Chairman of the United States Delegation to the Fifth International Congress of Tropical Medicine and Malaria, held Aug 28-Sept 4, 1953 at Istanbul, Turkey. (TIO, BuMed)

4. A cornerstone-laying ceremony for the new Armed Forces Institute of Pathology building will take place on Oct 20 at 10:00 A. M. at the Walter Reed Army Medical Center. Brig. Gen. Elbert DeCoursey, MC, USA, Director of the AFIP, will preside at the ceremony. The Honorable Melvin A. Casberg, M. D., Assistant Secretary of Defense (Health and Medicine), will be the principal speaker. (TIO, AFIP)

5. Doctor Louise Pearce, an American biologist, was recently presented the Cross of the Belgian Royal Order of the Lion and \$10,000. by the King of Belgium for her part in the discovery of trypanosomiasis 34 years ago. The drug is now used in the treatment of sleeping sickness in the Belgian Congo. (Science, 28 Aug. 1953)

6. A simple, efficient, and rapid method for paraffin embedding through the use of a gypsum plaster boat is described in the American Journal of Clinical Pathology, Aug. 1953, P.G. Piper.

7. A series of reports of observations made during the past 5 years on hypogonadal disorders of the male will be presented. The first report is an account of the histology of the normal testis throughout a life span of man. Subsequent reports will be concerned with a new classification of testicular deficiency, responses of the testis to various agents, and the therapy of hypogonadal states. (Proc. Staff Meet., Mayo Clin, 12 Aug. 1953, A. Albert, L. O. Underdahl, L. F. Greene, and N. Lorenz)

8. Experimental results indicate an adversely changed reactivity of the brain and heart to analeptics during hypothermia. The administration of these drugs is considered hazardous because it may result in cardiovascular failure and in clinical or subclinical convulsions complicated by respiratory arrest. It is recommended not to use these drugs during resuscitation from hypothermia. (USAF School of Aviation Medicine, Project Number 12-1202-0003, 29 July 1953)

9. Controlled and satisfactory sedation during eye surgery was obtained in 75 of 80 cases in which a continuous drip of dilute pentobarbital sodium was administered intravenously just before and during the operation. (Arch. Ophth., Aug. 1953, R. J. Schillinger)

10. The ocular changes in thyrotropic exophthalmos is discussed in the American Journal of Ophthalmology, Aug. 1953, G. O. Dayton, Jr.
11. The antibiotics, erythromycin and carbomycin, the penicillin derivatives, benzethacil and penethamate hydriodide and Polymyxin B are discussed in Annals of Internal Medicine, Aug. 1953, J. W. Haviland.
12. Three cases of solitary nonparasitic cysts of the liver are reported in Minnesota Medicine, Aug. 1953, D. Gavisser.
13. Another alleged "cancer cure"--the arginase treatment--has been denounced by the California Medical Association. The San Francisco Chronicle, reporting the announcement of the CMA Cancer Commission last month said, "There is no evidence to date that arginase has a beneficial effect on patients with cancer." Arginase is a naturally occurring chemical found in the liver and in other tissues. Its use against cancer was pushed largely in Southern California. (Cancer Control Letter, P. H. S., Dept. of H. E. W.)
14. The following naval medical officers have recently attained American Board Certification: LT W. W. Buckhaults (MC) USNR, American Board of Ophthalmology, and LT J. R. Newkirk (MC) USNR, American Board of Surgery. (ResDiv., BuMed)
15. A major study of amyotrophic lateral sclerosis has just been initiated on Guam. This investigation, in which the Public Health Service, the Navy Bureau of Medicine and Surgery, and the Department of Interior are participating, will be headed by Dr. Leonard T. Kurland, Chief Epidemiologist of the Public Health Service's National Institute of Neurological Diseases and Blindness, who left for Guam this month. (P. H. S., Dept. of H. E. W.)
16. Four of the Bureau's scientific exhibits will be displayed during the latter part of September and the early part of October, 1953. Three of the scientific exhibits will be displayed at the annual meeting of the American Dental Association being held Sept. 28 through Oct. 1, 1953, in Cleveland, Ohio. These exhibits are: "Career Plan for Dental Officers," "U. S. Navy Dental Corps Casualty Treatment Training Program," and "Experimental Mouth Simulating In Vivo Conditions." The fourth exhibit is entitled "Radioactive Gold in the Treatment of Malignancies and Blood Volume Studies", which will be presented at the meeting of the American Roentgen Ray Society Sept. 29 through Oct. 2, 1953, at Cincinnati, Ohio. (TIO, BuMed)
17. Commander Frederick T. Wigand (DC) USN, who is on duty at the Naval Training Center, Bainbridge, has been awarded a Commendation Ribbon with Metal Pendant and combat "V" for accomplishments while serving with the First Marine Division, Fleet Marine Force, in Korea. (TIO, BuMed)



## BUMED INSTRUCTION 6530.2A

19 Aug 1953

From: Chief, Bureau of Medicine and Surgery  
To: All Ships and Stations Including MSTS

Subj: Blood derivatives; potency data and disposition instructions

This instruction provides current information as to the potency periods of blood derivatives and authority for their disposition. BuMed Instruction 6530.2 is cancelled.

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## BUMED INSTRUCTION 6820.7

19 Aug 1953

From: Chief, Bureau of Medicine and Surgery  
To: Ships and Stations Having Hospital Corps Personnel Regularly Assigned

Subj: Handbook of the Hospital Corps, U.S. Navy, 1953, NavMed-P-5004; distribution on custody basis of

This instruction sets forth the procedure for the initial and subsequent distribution of the Handbook of the Hospital Corps, U.S. Navy, 1953. Distribution will be under BuMed control and will be on an activity, rather than personal copy, basis. Initial distribution will be made to activities for custody and assignment. Distribution will be made on the basis of the average on-board strength following a general formula of 1 copy for each 3 corpsmen (or less) aboard. A commissioning allowance based on the initial distribution formula will be furnished automatically to ships. Submission of a requisition will not be required.

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## BUMED INSTRUCTION 6010.3

25 Aug 1953

From: Chief, Bureau of Medicine and Surgery  
To: Commanding Officers, U. S. Naval Hospitals

Subj: Nursing administrative procedures; maintenance of ward records

This instruction issues standard procedures for preparation and maintenance of administrative records at nursing stations.

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## BUMED INSTRUCTION 6222. 3A

26 Aug 1953

From: Chief, Bureau of Medicine and Surgery  
 To: Ships and Stations Having Medical/Dental Personnel Regularly Assigned  
 Subj: Oral penicillin prevention of gonorrhea  
 Encl: (1) Information on Oral Penicillin Prophylaxis

This instruction provides information regarding the use of oral penicillin as a prophylaxis for gonorrhea. BuMed Instruction 6222. 3 is cancelled.

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## BUMED INSTRUCTION 6320. 5B

26 Aug 1953

From: Chief, Bureau of Medicine and Surgery  
 To: All Naval Hospitals  
 Subj: Naval hospitals designated to receive patients who require special treatment  
 Ref: (a) Art. 11-30(2), ManMedDept

This instruction revises and publishes instructions designating certain naval hospitals to receive patients who require definitive treatment and specialized medical care: BuMed Instruction 6320. 5A of 16 March 1953 is cancelled.

Item	Type of treatment or care	Naval Hospital
a.	Acrylic ocular prosthesis .....	Bethesda, Md. San Diego, Calif.
b.	Amputations .....	Oakland, Calif. Philadelphia, Pa.
c.	Aural rehabilitation.....	Philadelphia, Pa.
d.	Neurology.....	Bethesda, Md. Oakland, Calif. Philadelphia, Pa.
e.	Neuropsychiatry.....	Oakland, Calif. Philadelphia, Pa.
f.	Neurosurgery.....	Bethesda, Md. Chelsea, Mass. Oakland, Calif. San Diego, Calif. St. Albans, N. Y.



<u>Item</u>	<u>Type of treatment or care</u>	<u>Naval Hospital</u>
g.	Oncology.....	Bethesda, Md. Oakland, Calif. San Diego, Calif. St. Albans, N. Y.
h.	Plastic Surgery.....	Bethesda, Md. Oakland, Calif. San Diego, Calif. St. Albans, N. Y.
i.	Surgery for the deaf.....	Bethesda, Md.
j.	Thoracic and cardiovascular surgery.....	Chelsea, Mass. Oakland, Calif. San Diego, Calif. St. Albans, N. Y.
k.	Tropical diseases.....	Bethesda, Md.
l.	Tuberculosis.....	San Diego, Calif. St. Albans, N. Y.

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BUMED NOTICE 6820

26 Aug 1953

From: Chief, Bureau of Medicine and Surgery  
 To: Fleet, Force, and Staff Medical and Dental Officers; District Medical and Dental Officers; Commanding Officers of Medical Department Activities; Division Surgeons and Dental Officers, Marine Divisions  
 Subj: Handbook of the Hospital Corps, U. S. Navy, 1953, NavMed-P-5004; distribution on custody basis of  
 Ref: (a) BuMed Inst. 6820. 7

Reference (a) sets forth Bureau policy and procedure for the initial and subsequent distribution of the new Handbook of the Hospital Corps.

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BUMED NOTICE 6820

26 Aug 1953

From: Chief, Bureau of Medicine and Surgery  
 To: Commandants 1, 3, 4, 5, 6, 8, 9, 11, 12, 13, 14 Naval Districts, Commandant Potomac River Naval Command

Subj: Handbook of the Hospital Corps, U.S. Navy, 1953, NavMed-P-5004;  
distribution on custody basis of

Ref: (a) BuMed Inst. 6820.7

This notice covers distribution of Handbook of the Hospital Corps, U.S. Navy, 1953, for Reserve Training Centers.

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Change of Address

Please forward requests for change of address for the News Letter to:  
Commanding Officer, U.S. Navy Medical School, National Naval Medical  
Center, Bethesda 14, Maryland, giving full name, rank, corps, and old  
and new addresses.

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